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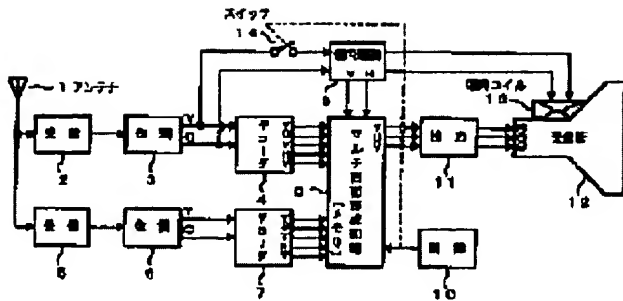
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Request for ExaminationUnrequested**The number of claims** 2**Mode of Application**OL**Number of Pages**8(21)**Application number**Japanese Patent Application No. 9-294273(22)**Filing date**Heisei 9(1997) (1997) October 27(71)**Applicant****Identification Number**000002185**Name**Sony Corp.**Address**6-7-35, Kitashinagawa, Shinagawa-ku, Tokyo(72)**Inventor(s)****Name**Ryota Katsumata**Address**6-7-35, Kitashinagawa, Shinagawa-ku, Tokyo Inside of Sony Corp.(72)**Inventor(s)****Name**Koji Takeda**Address**6-7-35, Kitashinagawa, Shinagawa-ku, Tokyo Inside of Sony Corp.(74)**Attorney****Patent Attorney****Name**Hidemori Matsukuma

Abstract:

PROBLEM TO BE SOLVED: To form a stable multi-screen without using any new circuit constitution.
SOLUTION: The TV signals sent from an antenna 1 are supplied to the receiving circuits 2 and 5 and then supplied to the decoder circuits 4 and 7 via the demodulation circuits 3 and 6. Then the luminance signals, the U/V axial signals and the vertical/horizontal synchronizing signals are taken out at both circuits 4 and 7 and then supplied to a multi-screen forming circuit 8 including a memory. Meanwhile, the luminance and chroma signals sent from the circuit 3 are supplied to a deflection drive circuit 9, and the synchronizing signals sent from the circuit 9 are supplied to the circuit 8 to produce the video signals of a multi-screen. These video signals are supplied to an image receiving tube 12 via an output circuit 11. The synchronizing signals are also supplied to a deflecting coil 13 from the circuit 9. Furthermore, the circuit 9 can freely run when it receives no input and a switch 14 functions to cut off the input of the circuit 9 in a multi-screen mode.

**JPO Machine translation abstract:****(57) Abstract**

SUBJECT A stable multi screen is formed without using new circuitry.

Means for Solution A signal from the antenna 1 is supplied to the receiving circuits 2 and 5, a received television signal is supplied to the decoder circuits 4 and 7 through the demodulator circuits 3 and 6, and a luminance signal, and a signal, and vertical/Horizontal Synchronizing signal of a U/V axis is taken out. A signal from these decoder circuits 4 and 7 is supplied to the formation circuit 8 of a multi screen containing a memory. A luminance signal and a chroma signal from the demodulator circuit 3 are supplied to the deflection drive circuit 9. And a synchronized signal from this drive circuit 9 is supplied to the formation circuit 8, a video signal of a multi screen is formed and a formed video signal is supplied to the television picture tube 12 through the output circuit 11. A synchronized signal from the drive circuit 9 is supplied to the deflection coil 13. Furthermore, the drive circuit 9 is constituted so that running by itself may become possible, when there is no input, and the switch 14 is formed so that an input of this drive circuit 9 may be intercepted in the case of a multi screen.

Claim(s)

Claim 1 A multi screen device comprising:

A driving means which drives a displaying means which separates a synchronized signal of a video signal from a video signal source of 1, and displays the above-mentioned video signal at least. According to each one of synchronized signals, write a video signal from two or more video signal sources in a multi screen formation circuit, and. In a multi screen device which obtains a multi screen which read the above-mentioned multi screen formation circuit, and combined a video signal from two or more above-mentioned video signal sources with one, A means to constitute the above-mentioned driving means so that running by oneself may become possible, when there is no input signal, to read the above-mentioned multi screen formation circuit according to a synchronized signal from the above-mentioned driving means, and to intercept an input signal of

the above-mentioned driving means in the case of a display of the above-mentioned multi screen.

Claim 2A multi screen device displaying a video signal with which the above-mentioned multi screen formation circuit was read on the above-mentioned displaying means in the multi screen device according to claim 1.

Detailed Description of the Invention

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Field of the InventionThis invention is used when displaying on one, for example combining the television screen of two or more channels, and it relates to a suitable multi screen device.

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Description of the Prior ArtFor example, the method called from the former what is called a picture yne picture is used to know the program content of another channel currently broadcast in parallel.

0003That is, in drawing 2, the signal from the antenna 51 is supplied to the 1st receiving circuit 52, and the television signal of a desired channel is received. The television signal received in this receiving circuit 52 is supplied to the demodulator circuit 53, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 54, and the signal of the luminance signal Y and U axis, and V axis is taken out.

0004The signal of these luminance signals Y and U axis, and V axis is supplied to the output circuit 58 through the changeover switches 55, 56, and 57, and the three-primary-colors signal (R/G/B) from this output circuit 58 is supplied to the television picture tube 59. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 54 is supplied to the deflection coil 61 of the television picture tube 59 through the deflection drive circuit 60.

0005Furthermore, the signal from the antenna 51 is supplied to the 2nd receiving circuit 62, and the television signal of a desired channel is received. The television signal received in this receiving circuit 62 is supplied to the demodulator circuit 63, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 64, and the signal of the luminance signal Y and U axis, and V axis is taken out.

0006The signal of these luminance signals Y and U axis, and V axis is supplied to the memory circuit 65. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 64 is supplied to the memory circuit 65. According to these synchronized signals, the signal of the luminance signal Y from the decoder circuit 64 and U axis, and V axis is written in the memory circuit 65 by this.

0007The synchronized signal taken out from the further above-mentioned decoder circuit 54 is supplied to the control circuit 66. And the control signal from this control circuit 66 is supplied to the memory circuit 65, and the signal written in to predetermined timing is read. Furthermore, these signals are supplied to the changeover switches 55-57, and these switches 55-57 are changed by the control signal from the control circuit 66.

0008As shown in a figure, the child screen 68 with the image of the television signal received in the 2nd receiving circuit 62 is displayed on the position in the parent screen 67 with the image of the television signal received in the 1st receiving circuit 52 by this. The display position of this child screen 68 can be arbitrarily changed into the position etc. which are shown with a dashed line corresponding to control of the control circuit 66.

0009However, it is difficult to display the image of the television signal of two channels in an equal size in the method of such a picture yne picture, for example. The image of the television signal of those channels cannot be displayed with what is called a multi screen to survey the program of each channel currently broadcast, for example, either.

0010On the other hand, displaying the image of the television signal of two above-mentioned channels in an equal size and the method of displaying the image of the television signal of three or more channels with a multi screen are proposed by processing the signal of the above-mentioned parent screen 67 using a memory. That is, drawing 3 is a block diagram showing the composition of such a conventional multi screen device.

0011In drawing 3, the signal from the antenna 71 is supplied to the 1st receiving circuit 72, and

the television signal of a desired channel is received. The television signal received in this receiving circuit 72 is supplied to the demodulator circuit 73, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 74, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0012The signal from the antenna 71 is supplied to the 2nd receiving circuit 75, and the television signal of a desired channel is received. The television signal received in this receiving circuit 75 is supplied to the demodulator circuit 76, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 77, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0013The signal from these decoder circuits 74 and 77 is supplied to the formation circuit 78 of the multi screen containing a memory. The signal of each luminance signal Y and U axis, and V axis is written in the predetermined address according to the vertical/horizontal synchronized signal (V/H) from each decoder circuit 74 and 77 by this in the multi screen formation circuit 78.

0014On the other hand, the luminance signal Y from the demodulator circuit 73 and chroma signal C are supplied to the deflection drive circuit 79, and the vertical/horizontal synchronized signal (V/H) of the television signal received in the 1st receiving circuit 72 is taken out. And the signal which displays the image of the television signal of two channels as these synchronized signals (V/H) supplied to the multi screen formation circuit 78, for example, shown in A of drawing 4 in an equal size is formed.

0015That is, the control signal from the control circuit 80 is further supplied to this multi screen formation circuit 78. And the video signal which displays a screen like a graphic display is formed by reading the address with which the signal of the luminance signal Y from the decoder circuits 74 and 77 and U axis, and V axis was written in in the timing of Screens 91 and 92 shown, for example in A of drawing 4. A plain signal is inserted in Screens 93 and 94 in a figure.

0016The video signal furthermore formed in this multi screen formation circuit 78 is supplied to the output circuit 81, and the three-primary-colors signal (R/G/B) from this output circuit 81 is supplied to the television picture tube 82. The vertical/horizontal synchronized signal (V/H) taken out from the above-mentioned deflection drive circuit 79 is supplied to the deflection coil 83 of the television picture tube 82. The multi screen where the above-mentioned screens 91-94 were put together is displayed on the television picture tube 82 by this.

0017Or it is an above-mentioned device and a multi screen as shown, for example in B or C of drawing 4 can also be displayed. Namely, B of drawing 4 divides a screen into nine at division into equal parts, and express the video signal from the decoder circuit 74 in central Screen 95 as an animation in this case, and. The 2nd receiving circuit 75 can be changed to surrounding Screen 96 in order, for example, and the image of eight channels can be displayed on it with Still Picture Sub-Division one by one.

0018Furthermore, C of drawing 4 forms the small screen 98 in the center of a screen Screen 97 and around one fourth of area, and express the video signal from the decoder circuit 74 in central Screen 97 as an animation also in this case, and. The 2nd receiving circuit 75 can be changed to surrounding Screen 98 in order, for example, and the image of the channel of 12 can be displayed on it with Still Picture Sub-Division one by one.

0019However, when the multi screen is displayed with an above-mentioned device, the television signal of a channel received, for example by the time of the change of a channel or the end of broadcast in the 1st receiving circuit 72 turns into a non-signal, or, Or when the channel of a weak-electric-current community is received, the case where extraction of the vertical/horizontal synchronized signal (V/H) in the deflection drive circuit 79 is no longer performed normally arises.

0020In that case, in an above-mentioned device, a normal synchronized signal (V/H) will be supplied to the multi screen formation circuit 78, and formation of a good multi screen will become impossible. For this reason, in the conventional device, in the state where the television signal of a channel received in the 1st receiving circuit 72 at the time of the change of a channel, etc. turns into a non-signal, it erased, the disordered screen was not displayed and the display of the television picture tube was made.

0021However, when the image of the channel which is a screen of A of drawing 4 and is received in an above-mentioned device in the 1st receiving circuit 72, for example is displayed on right-hand side Screen 91, If the signal of the channel of this screen 91 turned into a non-signal, once the display of a television picture tube will be erased, the disordered screen by a non-signal will be

displayed, but. Even if the signal of the channel of Screen 92 turns into a non-signal, the display of a television picture tube is not erased only by a noise being displayed on Screen 92, but the display of Screen 91 can be seen.

0022That is, on a multi screen, the dominance difference exists in this case between Screen 91 and Screen 92 which are displayed in the equal size. However, such existence of a dominance difference is very difficult for making a user understand. And as for the result, a possibility of giving a user misunderstanding with failure etc. has become very large.

0023In an above-mentioned device, on the screen of B of drawing 4, and C, if the signal of the channel currently displayed on central Screens 95 and 97 turned into a non-signal, once the display of a television picture tube will be erased, the disordered screen by a non-signal will be displayed, but. For example, it is irrational and being frequently erased to surrounding Screens 96 and 98 at the time of the change of the channel currently displayed on central Screens 95 and 97 has a large possibility of giving a user misunderstanding with failure etc.

0024Then, in order to abolish the situation where such a display is erased and to abolish disorder of the whole display at the time of a non-signal / weak-electric-current community, the device shown in drawing 5 was proposed. That is, the synchronization generation circuit 84 is formed in drawing 5. And the Horizontal Synchronizing signal (H) from this synchronization generation circuit 84 and the Horizontal Synchronizing signal (H) from the deflection drive circuit 79 are changed with the changeover switch 85, and are supplied to the multi screen formation circuit 78. Others are constituted like drawing 3.

0025Therefore, in the device of this drawing 5, by changing the changeover switch 85 to the synchronization generation circuit 84 side at the time of formation of a multi screen in the multi screen formation circuit 78. For example, it is not concerned with the existence of the signal of the channel received in the 1st receiving circuit 72, but an always stable synchronized signal is supplied, and the video signal of an always good multi screen can be formed using this stable synchronized signal.

0026However, in this device, the synchronization generation circuit 84 is newly needed. And the oscillator which performs a stable oscillation, and the circuitry for forming a predetermined synchronized signal waveform are required for such a synchronization generation circuit 84 on the defined frequency, and complicated circuitry, an oscillation element, etc. are needed and it cannot realize easily.

0027

Problem(s) to be Solved by the InventionThe problem which is going to accomplish this application in view of such a point, and it is going to solve, If a display is erased in order to disturb a screen with the conventional device at the time of formation of a multi screen and to hide this, in order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, additional circuitry is newly needed.

0028

Means for Solving the ProblemFor this reason, in this invention, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to a synchronized signal from a driving means, read a multi screen formation circuit, and. As a means to intercept an input signal of a driving means is formed in the case of a display of a multi screen, according to this, a stable multi screen can be formed, without using new circuitry.

0029

Embodiment of the InventionNamely, this invention has a driving means which drives the displaying means which separates the synchronized signal of the video signal from the video signal source of 1, and displays a video signal at least, According to each one of synchronized signals, write the video signal from two or more video signal sources in a multi screen formation circuit, and. In the multi screen device which obtains the multi screen which read the multi screen formation circuit and combined the video signal from two or more video signal sources with one, Constitute a driving means so that running by oneself may become possible, when there is no input signal, and a multi screen formation circuit is read according to the synchronized signal from a driving means, and a means to intercept the input signal of a driving means is formed in the case of the display of a multi screen.

0030

ExampleHereafter, it is a block diagram showing the composition of an example of the multi

screen device with which drawing 1 applied this invention with reference to Drawings explaining this invention.

0031In drawing 1, the signal from the antenna 1 is supplied to the 1st receiving circuit 2, and the television signal of a desired channel is received. The television signal received in this receiving circuit 2 is supplied to the demodulator circuit 3, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 4, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0032The signal from the antenna 1 is supplied to the 2nd receiving circuit 5, and the television signal of a desired channel is received. The television signal received in this receiving circuit 5 is supplied to the demodulator circuit 6, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 7, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0033The signal from these decoder circuits 4 and 7 is supplied to the formation circuit 8 of the multi screen containing a memory. The signal of each luminance signal Y and U axis, and V axis is written in the predetermined address according to the vertical/horizontal synchronized signal (V/H) from each decoder circuit 4 and 7 by this in the multi screen formation circuit 8.

0034On the other hand, the luminance signal Y from the demodulator circuit 3 and chroma signal C are supplied to the deflection drive circuit 9, and the vertical/horizontal synchronized signal (V/H) of the television signal received in the 1st receiving circuit 2 is taken out. And the video signal which displays a multi screen as these synchronized signals (V/H) supplied to the multi screen formation circuit 8, for example, shown in drawing 4 is formed.

0035That is, the control signal from the control circuit 10 is further supplied to this multi screen formation circuit 8. And the video signal which displays a screen as shows drawing 4 the address with which the signal of the luminance signal Y from the decoder circuits 4 and 7 and U axis, and V axis was written in by reading to predetermined timing, for example is formed.

0036The video signal furthermore formed in this multi screen formation circuit 8 is supplied to the output circuit 11, and the three-primary-colors signal (R/G/B) from this output circuit 11 is supplied to the television picture tube 12. The vertical/horizontal synchronized signal (V/H) taken out from the above-mentioned deflection drive circuit 9 is supplied to the deflection coil 13 of the television picture tube 12. An above-mentioned multi screen is displayed on the television picture tube 12 by this.

0037And further, in this device, when there is no input signal of nine above-mentioned deflection drive circuit, it is constituted so that running by itself may become possible, and in the case of the display of a multi screen, the switch 14 is formed so that the input signal of this deflection drive circuit 9 may be intercepted. That is, the switch 14 is formed in the supply line of the luminance signal Y from the demodulator circuit 3, and this switch 14 is turned off by the signal which shows the multi screen from the control circuit 10.

0038In this way, in this device, the deflection drive circuit 9 forms a vertical/horizontal synchronized signal (v/H) by running by itself by intercepting the input signal of the deflection drive circuit 9 by the switch 14 in the case of the display of a multi screen. And by supplying this synchronized signal to the deflection coil 13 of the multi screen formation circuit 8 and the television picture tube 12, an always good multi screen is displayed on the television picture tube 12.

0039The television signal of a channel received in the 1st receiving circuit 2, for example by this at the time of formation of a multi screen A non-signal, Or the necessity of a screen not being disturbed even if it becomes a weak-electric-current community, for example, erasing the display of a television picture tube at the time of the change of a channel, etc. is lost, and **therefore** required circuitry only forms the one switch 14 in the supply line of the luminance signal Y from the demodulator circuit 3.

0040Therefore, in this device, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. A stable multi screen can be formed by forming a means to intercept the input signal of a driving means, in the case of the display of a multi screen, without using new circuitry.

0041With the conventional device, a screen may be disturbed by this at the time of formation of a multi screen, According to this invention for that for which additional circuitry was newly needed in

order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, if a display is erased in order to hide this, these problems are easily cancelable.

0042In an above-mentioned device, the deflection drive circuit 9 can be performed using the circuit of product number CXA2025 which these people manufacture, for example, in order to constitute so that running by itself may become possible. This circuit will shift to a count down mode automatically, if an input signal is lost, and running by oneself is performed.

0043Although the multi screen device of above-mentioned this invention is inapplicable to the circuit of the conventional picture yne picture shown, for example in drawing 2, in the above-mentioned multi screen formation circuit 8, it can form the same multi screen.

0044In this way, according to the above-mentioned multi screen device, it has a driving means which drives the displaying means which separates the synchronized signal of the video signal from the video signal source of 1, and displays a video signal at least, According to each one of synchronized signals, write the video signal from two or more video signal sources in a multi screen formation circuit, and. In the multi screen device which obtains the multi screen which read the multi screen formation circuit and combined the video signal from two or more video signal sources with one, Constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. A stable multi screen can be formed by forming a means to intercept the input signal of a driving means, in the case of the display of a multi screen, without using new circuitry.

0045

Effect of the InventionTherefore, according to the invention of Claim 1, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. In the case of the display of a multi screen, a stable multi screen can be formed by this which forms a means to intercept the input signal of a driving means, without using new circuitry.

0046With the conventional device, a screen may be disturbed by this at the time of formation of a multi screen, According to this invention for that for which additional circuitry was newly needed in order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, if a display is erased in order to hide this, these problems are easily cancelable.

Field of the InventionThis invention is used when displaying on one, for example combining the television screen of two or more channels, and it relates to a suitable multi screen device.

Description of the Prior ArtFor example, the method called from the former what is called a picture yne picture is used to know the program content of another channel currently broadcast in parallel.

0003That is, in drawing 2, the signal from the antenna 51 is supplied to the 1st receiving circuit 52, and the television signal of a desired channel is received. The television signal received in this receiving circuit 52 is supplied to the demodulator circuit 53, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 54, and the signal of the luminance signal Y and U axis, and V axis is taken out.

0004The signal of these luminance signals Y and U axis, and V axis is supplied to the output circuit 58 through the changeover switches 55, 56, and 57, and the three-primary-colors signal (R/G/B) from this output circuit 58 is supplied to the television picture tube 59. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 54 is supplied to the deflection coil 61 of the television picture tube 59 through the deflection drive circuit 60.

0005Furthermore, the signal from the antenna 51 is supplied to the 2nd receiving circuit 62, and the television signal of a desired channel is received. The television signal received in this receiving circuit 62 is supplied to the demodulator circuit 63, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 64, and the signal of the luminance signal Y

and U axis, and V axis is taken out.

0006The signal of these luminance signals Y and U axis, and V axis is supplied to the memory circuit 65. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 64 is supplied to the memory circuit 65. According to these synchronized signals, the signal of the luminance signal Y from the decoder circuit 64 and U axis, and V axis is written in the memory circuit 65 by this.

0007The synchronized signal taken out from the further above-mentioned decoder circuit 54 is supplied to the control circuit 66. And the control signal from this control circuit 66 is supplied to the memory circuit 65, and the signal written in to predetermined timing is read. Furthermore, these signals are supplied to the changeover switches 55-57, and these switches 55-57 are changed by the control signal from the control circuit 66.

0008As shown in a figure, the child screen 68 with the image of the television signal received in the 2nd receiving circuit 62 is displayed on the position in the parent screen 67 with the image of the television signal received in the 1st receiving circuit 52 by this. The display position of this child screen 68 can be arbitrarily changed into the position etc. which are shown with a dashed line corresponding to control of the control circuit 66.

0009However, it is difficult to display the image of the television signal of two channels in an equal size in the method of such a picture yne picture, for example. The image of the television signal of those channels cannot be displayed with what is called a multi screen to survey the program of each channel currently broadcast, for example, either.

0010On the other hand, displaying the image of the television signal of two above-mentioned channels in an equal size and the method of displaying the image of the television signal of three or more channels with a multi screen are proposed by processing the signal of the above-mentioned parent screen 67 using a memory. That is, drawing 3 is a block diagram showing the composition of such a conventional multi screen device.

0011In drawing 3, the signal from the antenna 71 is supplied to the 1st receiving circuit 72, and the television signal of a desired channel is received. The television signal received in this receiving circuit 72 is supplied to the demodulator circuit 73, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 74, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0012The signal from the antenna 71 is supplied to the 2nd receiving circuit 75, and the television signal of a desired channel is received. The television signal received in this receiving circuit 75 is supplied to the demodulator circuit 76, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 77, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0013The signal from these decoder circuits 74 and 77 is supplied to the formation circuit 78 of the multi screen containing a memory. The signal of each luminance signal Y and U axis, and V axis is written in the predetermined address according to the vertical/horizontal synchronized signal (V/H) from each decoder circuit 74 and 77 by this in the multi screen formation circuit 78.

0014On the other hand, the luminance signal Y from the demodulator circuit 73 and chroma signal C are supplied to the deflection drive circuit 79, and the vertical/horizontal synchronized signal (V/H) of the television signal received in the 1st receiving circuit 72 is taken out. And the signal which displays the image of the television signal of two channels as these synchronized signals (V/H) supplied to the multi screen formation circuit 78, for example, shown in A of drawing 4 in an equal size is formed.

0015That is, the control signal from the control circuit 80 is further supplied to this multi screen formation circuit 78. And the video signal which displays a screen like a graphic display is formed by reading the address with which the signal of the luminance signal Y from the decoder circuits 74 and 77 and U axis, and V axis was written in in the timing of Screens 91 and 92 shown, for example in A of drawing 4. A plain signal is inserted in Screens 93 and 94 in a figure.

0016The video signal furthermore formed in this multi screen formation circuit 78 is supplied to the output circuit 81, and the three-primary-colors signal (R/G/B) from this output circuit 81 is supplied to the television picture tube 82. The vertical/horizontal synchronized signal (V/H) taken out from the above-mentioned deflection drive circuit 79 is supplied to the deflection coil 83 of the television picture tube 82. The multi screen where the above-mentioned screens 91-94 were put together is displayed on the television picture tube 82 by this.

0017Or it is an above-mentioned device and a multi screen as shown, for example in B or C of drawing 4 can also be displayed. Namely, B of drawing 4 divides a screen into nine at division into equal parts, and express the video signal from the decoder circuit 74 in central Screen 95 as an animation in this case, and. The 2nd receiving circuit 75 can be changed to surrounding Screen 96 in order, for example, and the image of eight channels can be displayed on it with Still Picture Sub-Division one by one.

0018Furthermore, C of drawing 4 forms the small screen 98 in the center of a screen Screen 97 and around one fourth of area, and express the video signal from the decoder circuit 74 in central Screen 97 as an animation also in this case, and. The 2nd receiving circuit 75 can be changed to surrounding Screen 98 in order, for example, and the image of the channel of 12 can be displayed on it with Still Picture Sub-Division one by one.

0019However, when the multi screen is displayed with an above-mentioned device, the television signal of a channel received, for example by the time of the change of a channel or the end of broadcast in the 1st receiving circuit 72 turns into a non-signal, or, Or when the channel of a weak-electric-current community is received, the case where extraction of the vertical/horizontal synchronized signal (V/H) in the deflection drive circuit 79 is no longer performed normally arises.

0020In that case, in an above-mentioned device, a normal synchronized signal (V/H) will be supplied to the multi screen formation circuit 78, and formation of a good multi screen will become impossible. For this reason, in the conventional device, in the state where the television signal of a channel received in the 1st receiving circuit 72 at the time of the change of a channel, etc. turns into a non-signal, it erased, the disordered screen was not displayed and the display of the television picture tube was made.

0021However, when the image of the channel which is a screen of A of drawing 4 and is received in an above-mentioned device in the 1st receiving circuit 72, for example is displayed on right-hand side Screen 91, If the signal of the channel of this screen 91 turned into a non-signal, once the display of a television picture tube will be erased, the disordered screen by a non-signal will be displayed, but. Even if the signal of the channel of Screen 92 turns into a non-signal, the display of a television picture tube is not erased only by a noise being displayed on Screen 92, but the display of Screen 91 can be seen.

0022That is, on a multi screen, the dominance difference exists in this case between Screen 91 and Screen 92 which are displayed in the equal size. However, such existence of a dominance difference is very difficult for making a user understand. And as for the result, a possibility of giving a user misunderstanding with failure etc. has become very large.

0023In an above-mentioned device, on the screen of B of drawing 4, and C, if the signal of the channel currently displayed on central Screens 95 and 97 turned into a non-signal, once the display of a television picture tube will be erased, the disordered screen by a non-signal will be displayed, but. For example, it is irrational and being frequently erased to surrounding Screens 96 and 98 at the time of the change of the channel currently displayed on central Screens 95 and 97 has a large possibility of giving a user misunderstanding with failure etc.

0024Then, in order to abolish the situation where such a display is erased and to abolish disorder of the whole display at the time of a non-signal / weak-electric-current community, the device shown in drawing 5 was proposed. That is, the synchronization generation circuit 84 is formed in drawing 5. And the Horizontal Synchronizing signal (H) from this synchronization generation circuit 84 and the Horizontal Synchronizing signal (H) from the deflection drive circuit 79 are changed with the changeover switch 85, and are supplied to the multi screen formation circuit 78. Others are constituted like drawing 3.

0025Therefore, in the device of this drawing 5, by changing the changeover switch 85 to the synchronization generation circuit 84 side at the time of formation of a multi screen in the multi screen formation circuit 78. For example, it is not concerned with the existence of the signal of the channel received in the 1st receiving circuit 72, but an always stable synchronized signal is supplied, and the video signal of an always good multi screen can be formed using this stable synchronized signal.

0026However, in this device, the synchronization generation circuit 84 is newly needed. And the oscillator which performs a stable oscillation, and the circuitry for forming a predetermined synchronized signal waveform are required for such a synchronization generation circuit 84 on the defined frequency, and complicated circuitry, an oscillation element, etc. are needed and it cannot

realize easily.

Effect of the InventionTherefore, according to the invention of Claim 1, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. In the case of the display of a multi screen, a stable multi screen can be formed by this which forms a means to intercept the input signal of a driving means, without using new circuitry.

0046With the conventional device, a screen may be disturbed by this at the time of formation of a multi screen, According to this invention for that for which additional circuitry was newly needed in order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, if a display is erased in order to hide this, these problems are easily cancelable.

ExampleHereafter, it is a block diagram showing the composition of an example of the multi screen device with which drawing 1 applied this invention with reference to Drawings explaining this invention.

0031In drawing 1, the signal from the antenna 1 is supplied to the 1st receiving circuit 2, and the television signal of a desired channel is received. The television signal received in this receiving circuit 2 is supplied to the demodulator circuit 3, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 4, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0032The signal from the antenna 1 is supplied to the 2nd receiving circuit 5, and the television signal of a desired channel is received. The television signal received in this receiving circuit 5 is supplied to the demodulator circuit 6, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 7, and a synchronized signal (V/H) vertical to the signal of the luminance signal Y and U axis, and V axis / horizontal is taken out.

0033The signal from these decoder circuits 4 and 7 is supplied to the formation circuit 8 of the multi screen containing a memory. The signal of each luminance signal Y and U axis, and V axis is written in the predetermined address according to the vertical/horizontal synchronized signal (V/H) from each decoder circuit 4 and 7 by this in the multi screen formation circuit 8.

0034On the other hand, the luminance signal Y from the demodulator circuit 3 and chroma signal C are supplied to the deflection drive circuit 9, and the vertical/horizontal synchronized signal (V/H) of the television signal received in the 1st receiving circuit 2 is taken out. And the video signal which displays a multi screen as these synchronized signals (V/H) supplied to the multi screen formation circuit 8, for example, shown in drawing 4 is formed.

0035That is, the control signal from the control circuit 10 is further supplied to this multi screen formation circuit 8. And the video signal which displays a screen as shows drawing 4 the address with which the signal of the luminance signal Y from the decoder circuits 4 and 7 and U axis, and V axis was written in by reading to predetermined timing, for example is formed.

0036The video signal furthermore formed in this multi screen formation circuit 8 is supplied to the output circuit 11, and the three-primary-colors signal (R/G/B) from this output circuit 11 is supplied to the television picture tube 12. The vertical/horizontal synchronized signal (V/H) taken out from the above-mentioned deflection drive circuit 9 is supplied to the deflection coil 13 of the television picture tube 12. An above-mentioned multi screen is displayed on the television picture tube 12 by this.

0037And further, in this device, when there is no input signal of nine above-mentioned deflection drive circuit, it is constituted so that running by itself may become possible, and in the case of the display of a multi screen, the switch 14 is formed so that the input signal of this deflection drive circuit 9 may be intercepted. That is, the switch 14 is formed in the supply line of the luminance signal Y from the demodulator circuit 3, and this switch 14 is turned off by the signal which shows the multi screen from the control circuit 10.

0038In this way, in this device, the deflection drive circuit 9 forms a vertical/horizontal synchronized signal (v/H) by running by itself by intercepting the input signal of the deflection

drive circuit 9 by the switch 14 in the case of the display of a multi screen. And by supplying this synchronized signal to the deflection coil 13 of the multi screen formation circuit 8 and the television picture tube 12, an always good multi screen is displayed on the television picture tube 12.

0039The television signal of a channel received in the 1st receiving circuit 2, for example by this at the time of formation of a multi screen A non-signal, Or the necessity of a screen not being disturbed even if it becomes a weak-electric-current community, for example, erasing the display of a television picture tube at the time of the change of a channel, etc. is lost, and **therefore** required circuitry only forms the one switch 14 in the supply line of the luminance signal Y from the demodulator circuit 3.

0040Therefore, in this device, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. A stable multi screen can be formed by forming a means to intercept the input signal of a driving means, in the case of the display of a multi screen, without using new circuitry.

0041With the conventional device, a screen may be disturbed by this at the time of formation of a multi screen, According to this invention for that for which additional circuitry was newly needed in order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, if a display is erased in order to hide this, these problems are easily cancelable.

0042In an above-mentioned device, the deflection drive circuit 9 can be performed using the circuit of product number CXA2025 which these people manufacture, for example, in order to constitute so that running by itself may become possible. This circuit will shift to a count down mode automatically, if an input signal is lost, and running by oneself is performed.

0043Although the multi screen device of above-mentioned this invention is inapplicable to the circuit of the conventional picture yne picture shown, for example in drawing 2, in the above-mentioned multi screen formation circuit 8, it can form the same multi screen.

0044In this way, according to the above-mentioned multi screen device, it has a driving means which drives the displaying means which separates the synchronized signal of the video signal from the video signal source of 1, and displays a video signal at least, According to each one of synchronized signals, write the video signal from two or more video signal sources in a multi screen formation circuit, and. In the multi screen device which obtains the multi screen which read the multi screen formation circuit and combined the video signal from two or more video signal sources with one, Constitute a driving means so that running by oneself may become possible, when there is no input signal, according to the synchronized signal from a driving means, read a multi screen formation circuit, and. A stable multi screen can be formed by forming a means to intercept the input signal of a driving means, in the case of the display of a multi screen, without using new circuitry.

Problem(s) to be Solved by the InventionThe problem which is going to accomplish this application in view of such a point, and it is going to solve, If a display is erased in order to disturb a screen with the conventional device at the time of formation of a multi screen and to hide this, in order for there to be a possibility of giving a user misunderstanding with failure etc. and to form a multi screen stably, additional circuitry is newly needed.

Means for Solving the ProblemFor this reason, in this invention, constitute a driving means so that running by oneself may become possible, when there is no input signal, according to a synchronized signal from a driving means, read a multi screen formation circuit, and. As a means to intercept an input signal of a driving means is formed in the case of a display of a multi screen, according to this, a stable multi screen can be formed, without using new circuitry.

0029

Embodiment of the InventionNamely, this invention has a driving means which drives the

displaying means which separates the synchronized signal of the video signal from the video signal source of 1, and displays a video signal at least, According to each one of synchronized signals, write the video signal from two or more video signal sources in a multi screen formation circuit, and. In the multi screen device which obtains the multi screen which read the multi screen formation circuit and combined the video signal from two or more video signal sources with one, Constitute a driving means so that running by oneself may become possible, when there is no input signal, and a multi screen formation circuit is read according to the synchronized signal from a driving means, and a means to intercept the input signal of a driving means is formed in the case of the display of a multi screen.

Brief Description of the Drawings

Drawing 1 It is a lineblock diagram of an example of the multi screen device with which this invention is applied.

Drawing 2 It is a lineblock diagram of a picture yne picture circuit.

Drawing 3 It is a lineblock diagram of the conventional multi screen device.

Drawing 4 It is a figure for the explanation.

Drawing 5 It is a lineblock diagram of the conventional multi screen device.

Description of Notations

1 -- A decoder circuit, 5 / -- The 2nd receiving circuit, 6 / -- A demodulator circuit, 7 / -- A decoder circuit, 8 / -- A multi screen formation circuit, 9 / -- A deflection drive circuit, 10 / -- A control circuit, 11 / -- An output circuit, 12 / -- A television picture tube, 13 / -- A deflection coil, 14 / -- Switch -- An antenna, 2 -- The 1st receiving circuit, 3 -- A demodulator circuit, 4

Drawing 1

For drawings please refer to the original document.

Drawing 3

For drawings please refer to the original document.

Drawing 2

For drawings please refer to the original document.

Drawing 4

For drawings please refer to the original document.

Drawing 5

For drawings please refer to the original document.

For drawings please refer to the original document.

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SONY CORP

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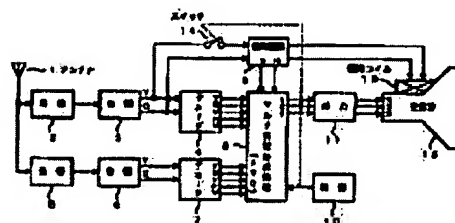
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TAKEDA KOJI

(54) MULTI-SCREEN DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To form a stable multi-screen without using any new circuit constitution.

SOLUTION: The TV signals sent from an antenna 1 are supplied to the receiving circuits 2 and 5 and then supplied to the decoder circuits 4 and 7 via the demodulation circuits 3 and 6. Then the luminance signals, the U/V axial signals and the vertical/horizontal synchronizing signals are taken out at both circuits 4 and 7 and then supplied to a multi-screen forming circuit 8 including a memory. Meanwhile, the luminance and chroma signals sent from the circuit 3 are supplied to a deflection drive circuit 9, and the synchronizing signals sent from the circuit 9 are supplied to the circuit 8 to produce the video signals of a multi-screen. These video signals are supplied to an image receiving tube 12 via an output circuit 11. The synchronizing signals are also supplied to a deflecting coil 13 from the circuit 9. Furthermore, the circuit 9 can freely run when it receives no input and a switch 14 functions to cut off the input of the circuit 9 in a multi-screen mode.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention is used when displaying on one, for example combining the television screen of two or more channels, and it relates to a suitable multi screen device.

[0002]

[Description of the Prior Art]For example, the method called from the former what is called a picture yne picture is used to know the program content of another channel currently broadcast in parallel.

[0003]That is, in drawing 2, the signal from the antenna 51 is supplied to the 1st receiving circuit 52, and the television signal of a desired channel is received. The television signal received in this receiving circuit 52 is supplied to the demodulator circuit 53, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 54, and the signal of the luminance signal Y and U axis, and V axis is taken out.

[0004]The signal of these luminance signals Y and U axis, and V axis is supplied to the output circuit 58 through the changeover switches 55, 56, and 57, and the three-primary-colors signal (R/G/B) from this output circuit 58 is supplied to the television picture tube 59. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 54 is supplied to the deflection coil 61 of the television picture tube 59 through the deflection drive circuit 60.

[0005]Furthermore, the signal from the antenna 51 is supplied to the 2nd receiving circuit 62, and the television signal of a desired channel is received. The television signal received in this receiving circuit 62 is supplied to the demodulator circuit 63, the luminance signal Y and chroma signal C get over, these signals are supplied to the decoder circuit 64, and the signal of the luminance signal Y and U axis, and V axis is taken out.

[0006]The signal of these luminance signals Y and U axis, and V axis is supplied to the memory circuit 65. The vertical/horizontal synchronized signal (V/H) taken out, for example from the decoder circuit 64 is supplied to the memory circuit 65. According to these synchronized signals, the signal of the luminance signal Y from the decoder circuit 64 and U axis, and V axis is written in the memory circuit 65 by this.

[0007]The synchronized signal taken out from the further above-mentioned decoder circuit 54 is supplied to the control circuit 66. And the control signal from this control circuit 66 is supplied to the memory circuit 65, and the signal written in to predetermined timing is read. Furthermore, these signals are supplied to the changeover switches 55-57, and these switches 55-57 are changed by the control signal from the control circuit 66.

[0008]As shown in a figure, the child screen 68 with the image of the television signal received in the 2nd receiving circuit 62 is displayed on the position in the parent screen 67 with the image of the television signal received in the 1st receiving circuit 52 by this. The display position of this child screen 68 can be arbitrarily changed into the position etc. which are shown with a dashed line corresponding to control of the control circuit 66.

[0009]However, it is difficult to display the image of the television signal of two channels in an equal size in the method of such a picture yne picture, for example. The image of the television

signal of those channels cannot be displayed with what is called a multi screen to survey the program of each channel currently broadcast, for example, either.

[0010]On the other hand, displaying the image of the television signal of two above-mentioned channels in an equal size and the method of displaying the image of the television signal of three or more channels with a multi screen are proposed by processing the signal of the above-mentioned parent screen 67 using a memory. That is, drawing 3 is a block diagram showing the composition of such a conventional multi screen device.

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CLAIMS

[Claim(s)]

[Claim 1]It has a driving means which drives a displaying means which separates a synchronized signal of a video signal from a video signal source of 1, and displays the above-mentioned video signal at least, According to each one of synchronized signals, write a video signal from two or more video signal sources in a multi screen formation circuit, and. In a multi screen device which obtains a multi screen which read the above-mentioned multi screen formation circuit, and combined a video signal from two or more above-mentioned video signal sources with one, A multi screen device having constituted the above-mentioned driving means so that running by oneself might become possible, when there was no input signal, having read the above-mentioned multi screen formation circuit according to a synchronized signal from the above-mentioned driving means, and forming a means to intercept an input signal of the above-mentioned driving means, on the occasion of a display of the above-mentioned multi screen.

[Claim 2]A multi screen device displaying a video signal with which the above-mentioned multi screen formation circuit was read on the above-mentioned displaying means in the multi screen device according to claim 1.

[Translation done.]

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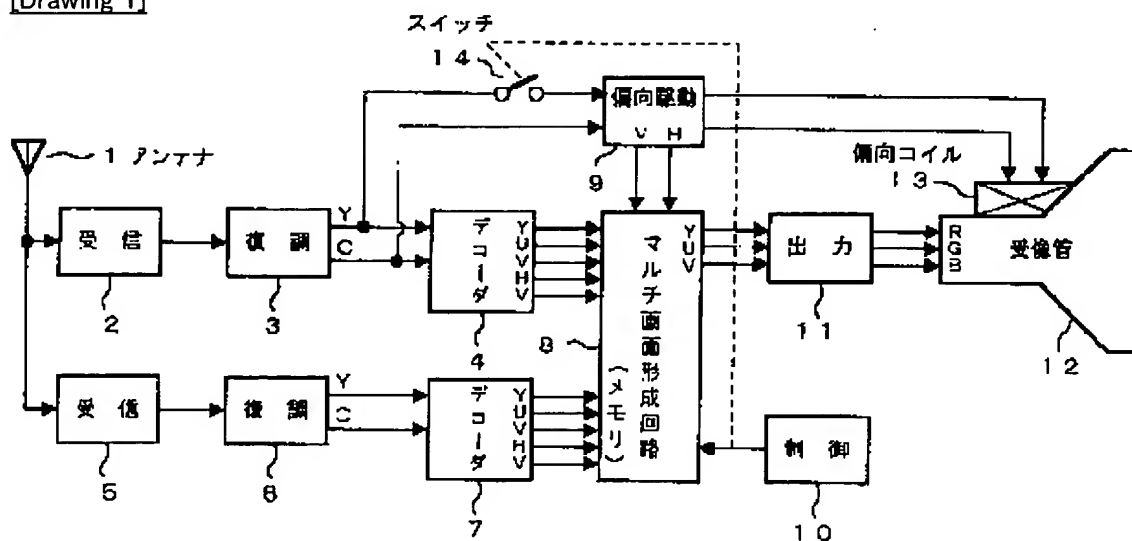
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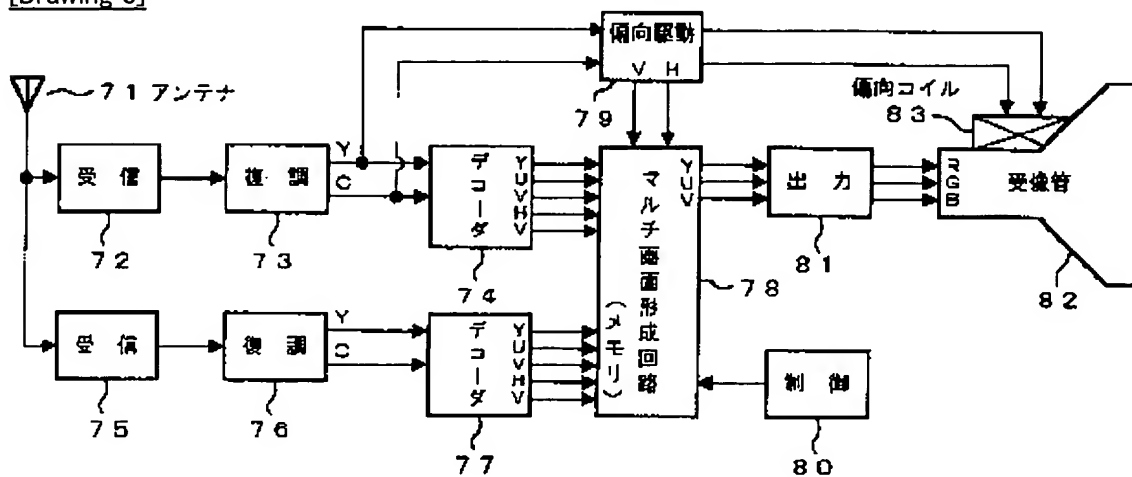
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DRAWINGS

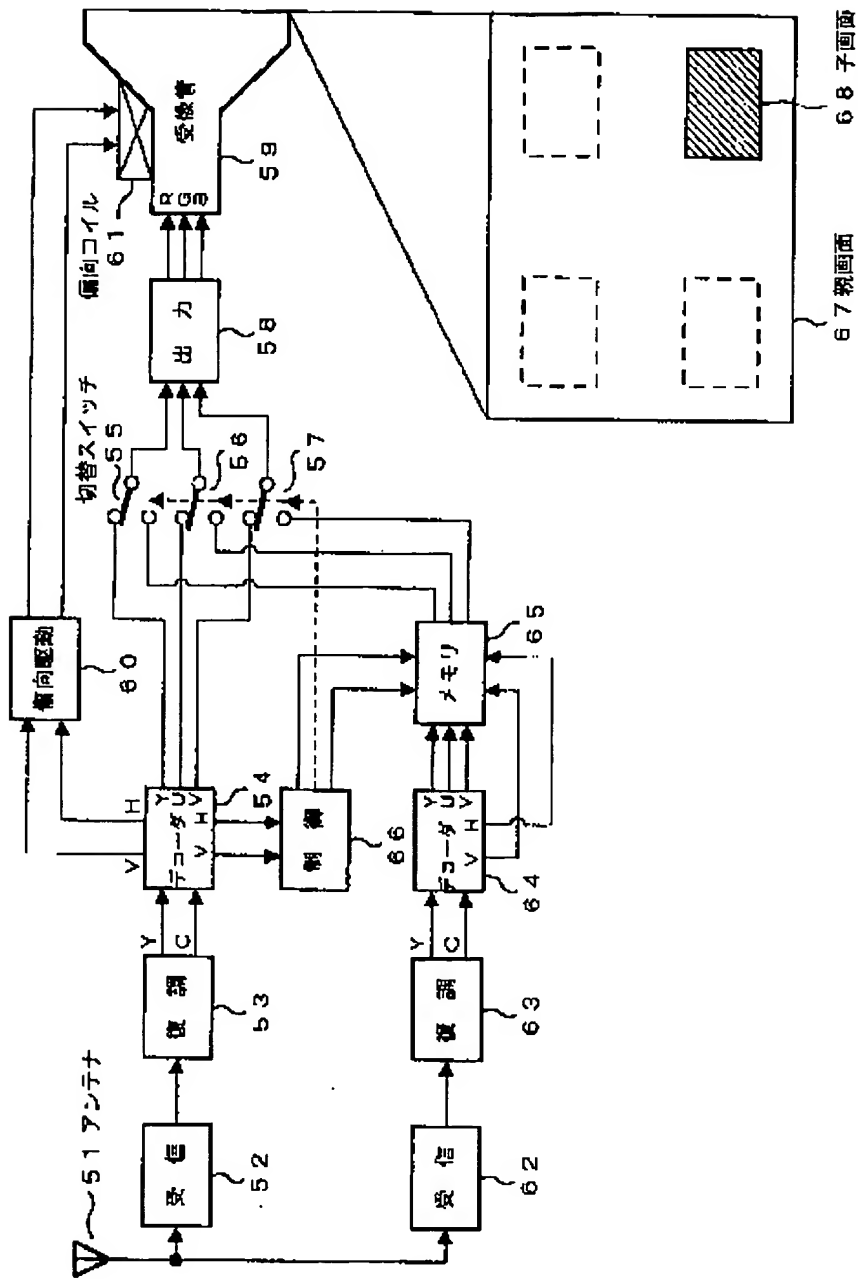
[Drawing 1]



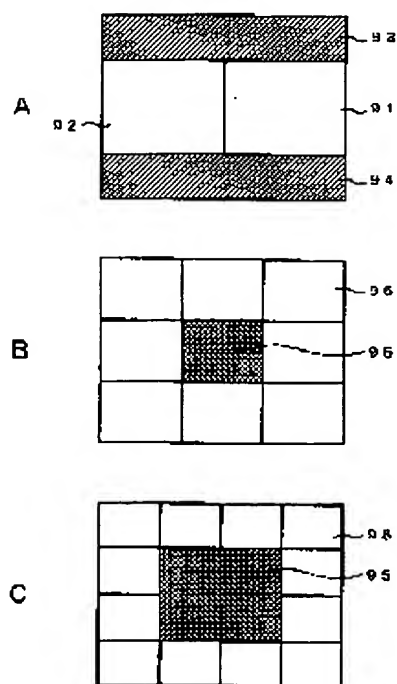
[Drawing 3]



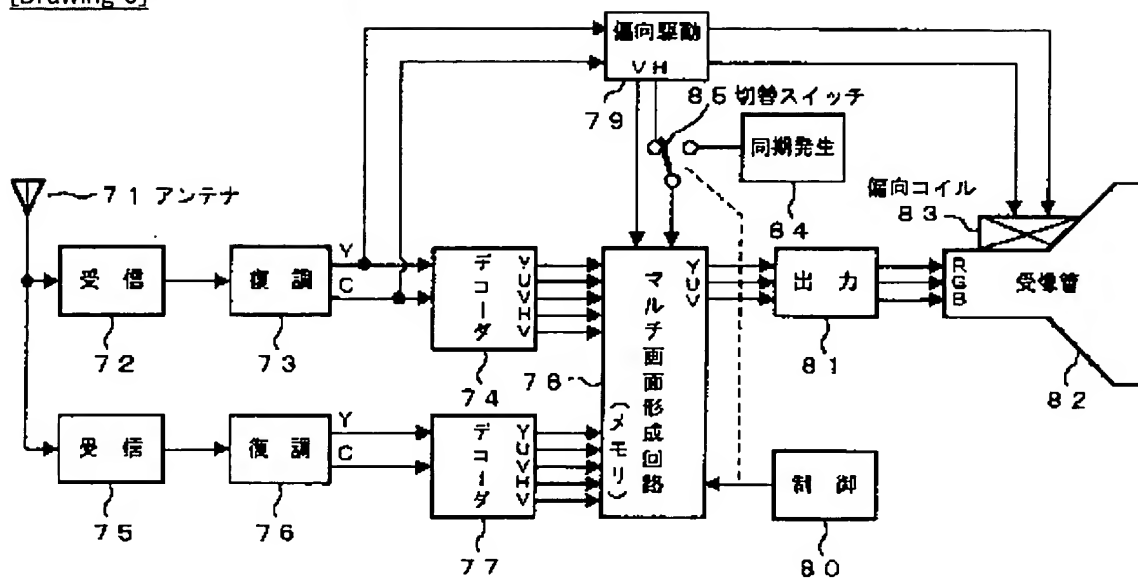
[Drawing 2]



[Drawing 4]



[Drawing 5]



[Translation done.]

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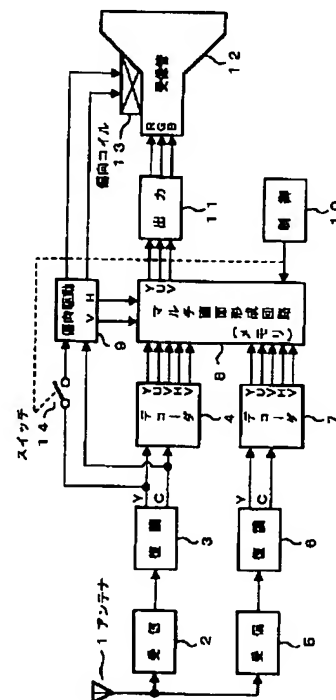
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(54) 【発明の名称】 マルチ画面装置

(57) 【要約】

【課題】 新たな回路構成を用いずに安定なマルチ画面の形成を行う。

【解決手段】 アンテナ1からの信号が受信回路2、5に供給され、受信されたテレビジョン信号が復調回路3、6を通じてデコーダ回路4、7に供給されて、輝度信号及びU/V軸の信号と垂直/水平同期信号が取り出される。これらのデコーダ回路4、7からの信号がメモリを含むマルチ画面の形成回路8に供給される。また復調回路3からの輝度信号とクロマ信号が偏向駆動回路9に供給される。そしてこの駆動回路9からの同期信号が形成回路8に供給されてマルチ画面の映像信号が形成され、形成された映像信号が出力回路11を通じて受像管12に供給される。また駆動回路9からの同期信号が偏向コイル13に供給される。さらに駆動回路9は入力無しとき自走可能となるように構成され、マルチ画面の際にこの駆動回路9の入力が遮断されるようにスイッチ14が設けられる。



【特許請求の範囲】

【請求項 1】 一の映像信号源からの映像信号の同期信号を分離して少なくとも上記映像信号の表示を行う表示手段を駆動する駆動手段を有し、

複数の映像信号源からの映像信号を各自の同期信号に従ってマルチ画面形成回路に書き込むと共に、

上記マルチ画面形成回路を読み出して上記複数の映像信号源からの映像信号を一つに組み合わせたマルチ画面を得るマルチ画面装置において、

上記駆動手段を入力信号の無いときに自走可能となるように構成し、

上記駆動手段からの同期信号に従って上記マルチ画面形成回路の読み出しを行うと共に、

上記マルチ画面の表示の際には上記駆動手段の入力信号を遮断する手段を設けたことを特徴とするマルチ画面装置。

【請求項 2】 請求項 1 記載のマルチ画面装置において、

上記マルチ画面形成回路の読み出された映像信号を上記表示手段に表示することを特徴とするマルチ画面装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、例えば複数のチャンネルのテレビジョン画面を一つに組み合わせて表示する場合に使用して好適なマルチ画面装置に関するものである。

【0002】

【従来の技術】例えば並行して放送されている別のチャンネルの番組内容を知りたい場合においては、従来からいわゆるピクチャー・イン・ピクチャーと呼ばれる方法が用いられている。

【0003】すなわち図 2 において、アンテナ 51 からの信号が第 1 の受信回路 52 に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路 52 で受信されたテレビジョン信号が復調回路 53 に供給されて、輝度信号 Y とクロマ信号 C が復調され、これらの信号がデコーダ回路 54 に供給されて、輝度信号 Y、及び U 軸、V 軸の信号が取り出される。

【0004】これらの輝度信号 Y、及び U 軸、V 軸の信号が切り替えスイッチ 55、56、57 を通じて出力回路 58 に供給され、この出力回路 58 からの 3 原色信号 (R/G/B) が受像管 59 に供給される。また、例えばデコーダ回路 54 から取り出される垂直/水平の同期信号 (V/H) が偏向駆動回路 60 を通じて受像管 59 の偏向コイル 61 に供給される。

【0005】さらにアンテナ 51 からの信号が第 2 の受信回路 62 に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路 62 で受信されたテレビジョン信号が復調回路 63 に供給されて、輝度信号 Y とクロマ信号 C が復調され、これらの信号がデコー

ダ回路 64 に供給されて、輝度信号 Y、及び U 軸、V 軸の信号が取り出される。

【0006】これらの輝度信号 Y、及び U 軸、V 軸の信号がメモリ回路 65 に供給される。また、例えばデコーダ回路 64 から取り出される垂直/水平の同期信号 (V/H) がメモリ回路 65 に供給される。これによって、これらの同期信号に従って、デコーダ回路 64 からの輝度信号 Y、及び U 軸、V 軸の信号がメモリ回路 65 に書き込まれる。

【0007】さらに上述のデコーダ回路 54 から取り出される同期信号が制御回路 66 に供給される。そしてこの制御回路 66 からの制御信号がメモリ回路 65 に供給されて、所定のタイミングで書き込まれた信号が読み出される。さらにこれらの信号が切り替えスイッチ 55～57 に供給され、これらのスイッチ 55～57 が制御回路 66 からの制御信号によって切り替えられる。

【0008】これによって例えば図中に示すように、第 1 の受信回路 52 で受信されたテレビジョン信号の映像による親画面 67 の中の所定の位置に、第 2 の受信回路 62 で受信されたテレビジョン信号の映像による子画面 68 が表示される。なおこの子画面 68 の表示位置は、制御回路 66 の制御に応じて例えば破線で示す位置等に任意に変更することができるものである。

【0009】ところがこのようなピクチャー・イン・ピクチャーの方法では、例えば 2 つのチャンネルのテレビジョン信号の映像を対等の大きさで表示することは困難である。また、例えば放送されている各チャンネルの番組を概観したい場合などに、いわゆるマルチ画面によってそれらのチャンネルのテレビジョン信号の映像を表示することもできないものである。

【0010】これに対して、上述の親画面 67 の信号もメモリを用いて処理することによって、上述の 2 つのチャンネルのテレビジョン信号の映像を対等の大きさで表示することや、マルチ画面によって 3 以上のチャンネルのテレビジョン信号の映像を表示する方法が提案されている。すなわち図 3 は、そのような従来のマルチ画面装置の構成を示すブロック図である。

【0011】図 3 において、アンテナ 71 からの信号が第 1 の受信回路 72 に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路 72 で受信されたテレビジョン信号が復調回路 73 に供給されて、輝度信号 Y とクロマ信号 C が復調され、これらの信号がデコーダ回路 74 に供給されて、輝度信号 Y、及び U 軸、V 軸の信号と垂直/水平の同期信号 (V/H) が取り出される。

【0012】また、アンテナ 71 からの信号が第 2 の受信回路 75 に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路 75 で受信されたテレビジョン信号が復調回路 76 に供給されて、輝度信号 Y とクロマ信号 C が復調され、これらの信号がデコー

ダ回路77に供給されて、輝度信号Y、及びU軸、V軸の信号と垂直／水平の同期信号(V/H)が取り出される。

【0013】さらに、これらのデコーダ回路74、77からの信号が、メモリを含むマルチ画面の形成回路78に供給される。これによってマルチ画面形成回路78では、それぞれの輝度信号Y、及びU軸、V軸の信号が、それぞれのデコーダ回路74、77からの垂直／水平の同期信号(V/H)に従った所定のアドレスに書き込まれる。

【0014】一方、復調回路73からの輝度信号Yとクロマ信号Cが偏向駆動回路79に供給されて、第1の受信回路72で受信されたテレビジョン信号の垂直／水平の同期信号(V/H)が取り出される。そしてこれらの同期信号(V/H)がマルチ画面形成回路78に供給されて、例えば図4のAに示すような2つのチャンネルのテレビジョン信号の映像を対等の大きさで表示する信号が形成される。

【0015】すなわちこのマルチ画面形成回路78には、さらに制御回路80からの制御信号が供給される。そしてデコーダ回路74、77からの輝度信号Y、及びU軸、V軸の信号の書き込まれたアドレスを、例えば図4のAに示す画面91、92のタイミングで読み出すことによって、図示のような画面を表示する映像信号が形成される。なお、図中の画面93、94には例えば無地の信号が挿入される。

【0016】さらにこのマルチ画面形成回路78で形成された映像信号が出力回路81に供給され、この出力回路81からの3原色信号(R/G/B)が受像管82に供給される。また、上述の偏向駆動回路79から取り出される垂直／水平の同期信号(V/H)が受像管82の偏向コイル83に供給される。これによって、上述の画面91～94の組み合わせられたマルチ画面が受像管82に表示される。

【0017】あるいは上述の装置で、例えば図4のBあるいはCに示すようなマルチ画面を表示することもできる。すなわち図4のBは、画面を等分に9分割したものであって、この場合に例えば中央の画面95にはデコーダ回路74からの映像信号を動画で表示すると共に、周囲の画面96には、例えば第2の受信回路75を順番に切り替えて8つのチャンネルの映像を順次静止画で表示することができる。

【0018】さらに図4のCは、画面の中央に1/4の面積の画面97とその周囲に小画面98を設けたものであって、この場合にも例えば中央の画面97にはデコーダ回路74からの映像信号を動画で表示すると共に、周囲の画面98には、例えば第2の受信回路75を順番に切り替えて12のチャンネルの映像を順次静止画で表示することができる。

【0019】ところが上述の装置でマルチ画面の表示を

行っている場合に、例えばチャンネルの切り替え時や放送終了で第1の受信回路72で受信されていたチャンネルのテレビジョン信号が無信号になったり、あるいは弱電界のチャンネルが受信された場合には、偏向駆動回路79での垂直／水平の同期信号(V/H)の取り出しが正常に行われなくなる場合が生じる。

【0020】その場合に上述の装置では、マルチ画面形成回路78に正常な同期信号(V/H)が供給されないことになって、良好なマルチ画面の形成ができなくなってしまう。このため従来の装置では、チャンネルの切り替え時等の第1の受信回路72で受信されていたチャンネルのテレビジョン信号が無信号になる状態では、受像管の表示を消して、乱れた画面が表示されないようにしていた。

【0021】しかし上述の装置において、例えば図4のAの画面で、例えば第1の受信回路72で受信されるチャンネルの映像が右側の画面91に表示されていた場合に、この画面91のチャンネルの信号が無信号になると受像管の表示は一旦消されたのち無信号による乱れた画面が表示されることになるが、画面92のチャンネルの信号が無信号になっても画面92にノイズが表示されるだけで受像管の表示は消されず、画面91の表示を見ることができる。

【0022】すなわちこの場合に、マルチ画面上では対等の大きさで表示されている画面91と画面92との間で優位差が存在しているものである。ところがこのような優位差の存在は、使用者に理解させることは極めて困難なものである。そしてその結果は、使用者に故障等との誤解を与える恐れが極めて大きくなってしまふものであった。

【0023】また上述の装置において、図4のB、Cの画面では、中央の画面95、97に表示されているチャンネルの信号が無信号になると受像管の表示は一旦消されたのち無信号による乱れた画面が表示されることになるが、例えば中央の画面95、97に表示されているチャンネルの切り替え時に、周囲の画面96、98まで頻繁に消されるのは、不合理であると共に、使用者に故障等との誤解を与える恐れが大きいものである。

【0024】そこでこのような表示が消される事態を無くし、また無信号／弱電界時の表示全体の乱れを無くするために、図5に示す装置が提案された。すなわち図5において、同期発生回路84が設けられる。そしてこの同期発生回路84からの水平同期信号(H)と、偏向駆動回路79からの水平同期信号(H)とが切り替えスイッチ85で切り替えられてマルチ画面形成回路78に供給される。他は図3と同様に構成される。

【0025】従ってこの図5の装置において、例えばマルチ画面の形成時には切り替えスイッチ85を同期発生回路84側に切り替えることによって、マルチ画面形成回路78には、例えば第1の受信回路72で受信される

チャンネルの信号の有無に関わらず常に安定な同期信号が供給され、この安定な同期信号を用いて常に良好なマルチ画面の映像信号を形成することができるものである。

【0026】しかしながらこの装置では、新たに同期発生回路84が必要とされるものである。そしてこのような同期発生回路84には、定められた周波数で安定な発振を行う発振器や、所定の同期信号波形を形成するための回路構成が必要なものであり、複雑な回路構成や発振素子等が必要とされて簡単には実現することができないものである。

【0027】

【発明が解決しようとする課題】この出願はこのような点に鑑みて成されたものであって、解決しようとする問題点は、従来の装置ではマルチ画面の形成時に画面が乱されることがあり、これを隠すために表示を消すと使用者に故障等との誤解を与える恐れがあり、またマルチ画面を安定に形成するためには新たに追加の回路構成が必要になるというものである。

【0028】

【課題を解決するための手段】このため本発明においては、駆動手段を入力信号の無いときに自走可能となるように構成し、駆動手段からの同期信号に従ってマルチ画面形成回路の読み出しを行うと共に、マルチ画面の表示の際には駆動手段の入力信号を遮断する手段を設けるようにしたものであって、これによれば、新たな回路構成を用いずに安定なマルチ画面の形成を行うことができる。

【0029】

【発明の実施の形態】すなわち本発明は、一の映像信号源からの映像信号の同期信号を分離して少なくとも映像信号の表示を行う表示手段を駆動する駆動手段を有し、複数の映像信号源からの映像信号を各自の同期信号に従ってマルチ画面形成回路に書き込むと共に、マルチ画面形成回路を読み出して複数の映像信号源からの映像信号を一つに組み合わせたマルチ画面を得るマルチ画面装置において、駆動手段を入力信号の無いときに自走可能となるように構成し、駆動手段からの同期信号に従ってマルチ画面形成回路の読み出しを行うと共に、マルチ画面の表示の際には駆動手段の入力信号を遮断する手段を設けてなるものである。

【0030】

【実施例】以下、図面を参照して本発明を説明するに、図1は本発明を適用したマルチ画面装置の一例の構成を示すブロック図である。

【0031】図1において、アンテナ1からの信号が第1の受信回路2に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路2で受信されたテレビジョン信号が復調回路3に供給されて、輝度信号Yとクロマ信号Cが復調され、これらの信号がデコー

ダ回路4に供給されて、輝度信号Y、及びU軸、V軸の信号と垂直/水平の同期信号(V/H)が取り出される。

【0032】また、アンテナ1からの信号が第2の受信回路5に供給されて、所望のチャンネルのテレビジョン信号が受信される。この受信回路5で受信されたテレビジョン信号が復調回路6に供給されて、輝度信号Yとクロマ信号Cが復調され、これらの信号がデコーダ回路7に供給されて、輝度信号Y、及びU軸、V軸の信号と垂直/水平の同期信号(V/H)が取り出される。

【0033】さらに、これらのデコーダ回路4、7からの信号が、メモリを含むマルチ画面の形成回路8に供給される。これによってマルチ画面形成回路8では、それぞれの輝度信号Y、及びU軸、V軸の信号が、それぞれのデコーダ回路4、7からの垂直/水平の同期信号(V/H)に従った所定のアドレスに書き込まれる。

【0034】一方、復調回路3からの輝度信号Yとクロマ信号Cが偏向駆動回路9に供給されて、第1の受信回路2で受信されたテレビジョン信号の垂直/水平の同期信号(V/H)が取り出される。そしてこれらの同期信号(V/H)がマルチ画面形成回路8に供給されて、例えば図4に示すようなマルチ画面を表示する映像信号が形成される。

【0035】すなわちこのマルチ画面形成回路8には、さらに制御回路10からの制御信号が供給される。そしてデコーダ回路4、7からの輝度信号Y、及びU軸、V軸の信号の書き込まれたアドレスを、所定のタイミングで読み出すことによって、例えば図4に示すような画面を表示する映像信号が形成される。

【0036】さらにこのマルチ画面形成回路8で形成された映像信号が出力回路11に供給され、この出力回路11からの3原色信号(R/G/B)が受像管12に供給される。また、上述の偏向駆動回路9から取り出される垂直/水平の同期信号(V/H)が受像管12の偏向コイル13に供給される。これによって、上述のマルチ画面が受像管12に表示される。

【0037】そしてさらにこの装置において、上述の偏向駆動回路9が入力信号の無いときに自走可能となるように構成されると共に、マルチ画面の表示の際にはこの偏向駆動回路9の入力信号が遮断されるようにスイッチ14が設けられる。すなわち復調回路3からの輝度信号Yの供給ラインにスイッチ14が設けられ、このスイッチ14が制御回路10からのマルチ画面を示す信号によってオフされる。

【0038】こうしてこの装置において、マルチ画面の表示の際には、偏向駆動回路9の入力信号がスイッチ14によって遮断されることにより、偏向駆動回路9は自走によって垂直/水平の同期信号(V/H)の形成を行う。そしてこの同期信号がマルチ画面形成回路8と受像管12の偏向コイル13に供給されることによって、受

像管 1 2 には常に良好なマルチ画面が表示されるものである。

【0039】これによってマルチ画面の形成時に、例えば第 1 の受信回路 2 で受信されていたチャンネルのテレビジョン信号が無信号、あるいは弱電界になっても画面が乱されることがなく、例えばチャンネルの切り替え時等に受像管の表示を消す必要が無くなると共に、そのために必要な回路構成は、復調回路 3 からの輝度信号 Y の供給ラインにスイッチ 1 4 を 1 個設けるだけである。

【0040】従ってこの装置において、駆動手段を入力信号の無いときに自走可能となるように構成し、駆動手段からの同期信号に従ってマルチ画面形成回路の読み出しを行うと共に、マルチ画面の表示の際には駆動手段の入力信号を遮断する手段を設けることによって、新たな回路構成を用いずに安定なマルチ画面の形成を行うことができる。

【0041】これによって、従来の装置ではマルチ画面の形成時に画面が乱されることがあり、これを隠すために表示を消すと使用者に故障等との誤解を与える恐れがあり、またマルチ画面を安定に形成するためには新たに追加の回路構成が必要になっていたものを、本発明によればこれらの問題点を容易に解消することができるものである。

【0042】なお上述の装置において、偏向駆動回路 9 を自走可能となるように構成するためには、例えば本出願人が製造する製品番号 C X A 2 0 2 5 の回路を用いて行うことができる。この回路は入力信号が無くなると自動的にカウントダウンモードに移行して自走が行われるものである。

【0043】また上述の本発明のマルチ画面装置は、例えば図 2 に示した従来のピクチャー・イン・ピクチャーの回路には適用できないものであるが、上述のマルチ画面形成回路 8 において、同様のマルチ画面を形成することは可能なものである。

【0044】こうして上述のマルチ画面装置によれば、一の映像信号源からの映像信号の同期信号を分離して少なくとも映像信号の表示を行う表示手段を駆動する駆動手段を有し、複数の映像信号源からの映像信号を各自の同期信号に従ってマルチ画面形成回路に書き込むと共

に、マルチ画面形成回路を読み出して複数の映像信号源からの映像信号を一つに組み合わせたマルチ画面を得るマルチ画面装置において、駆動手段を入力信号の無いときに自走可能となるように構成し、駆動手段からの同期信号に従ってマルチ画面形成回路の読み出しを行うと共に、マルチ画面の表示の際には駆動手段の入力信号を遮断する手段を設けることにより、新たな回路構成を用いずに安定なマルチ画面の形成を行うことができるものである。

【0045】

【発明の効果】従って請求項 1 の発明によれば、駆動手段を入力信号の無いときに自走可能となるように構成し、駆動手段からの同期信号に従ってマルチ画面形成回路の読み出しを行うと共に、マルチ画面の表示の際には駆動手段の入力信号を遮断する手段を設けるこれによって、新たな回路構成を用いずに安定なマルチ画面の形成を行うことができるものである。

【0046】これによって、従来の装置ではマルチ画面の形成時に画面が乱されることがあり、これを隠すために表示を消すと使用者に故障等との誤解を与える恐れがあり、またマルチ画面を安定に形成するためには新たに追加の回路構成が必要になっていたものを、本発明によればこれらの問題点を容易に解消することができるものである

【図面の簡単な説明】

【図 1】本発明の適用されるマルチ画面装置の一例の構成図である。

【図 2】ピクチャー・イン・ピクチャー回路の構成図である。

【図 3】従来のマルチ画面装置の構成図である。

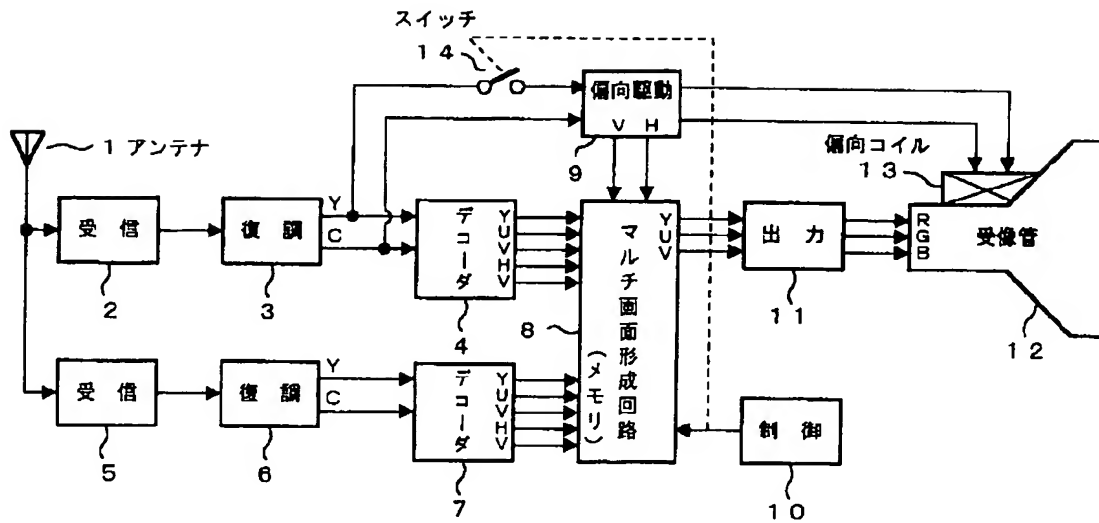
【図 4】その説明のための図である。

【図 5】従来のマルチ画面装置の構成図である。

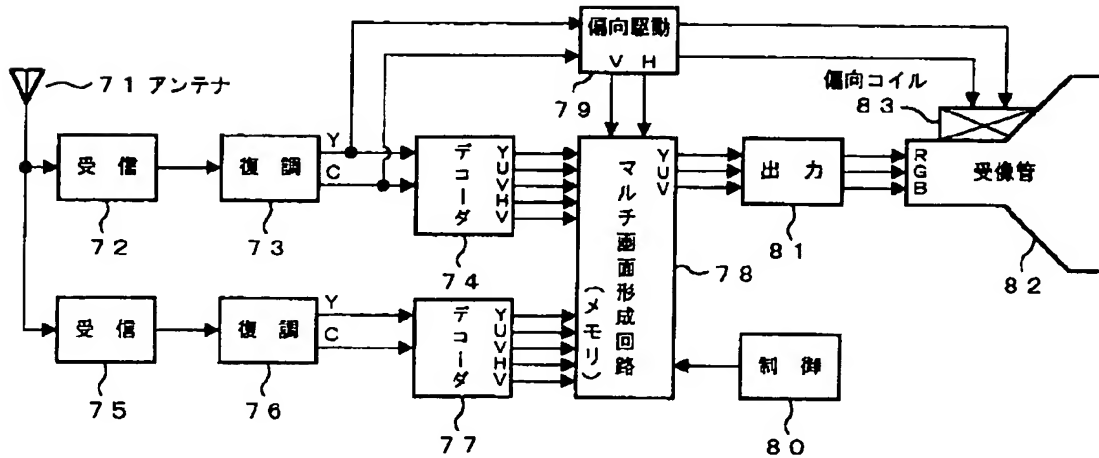
【符号の説明】

1…アンテナ、2…第 1 の受信回路、3…復調回路、4…デコーダ回路、5…第 2 の受信回路、6…復調回路、7…デコーダ回路、8…マルチ画面形成回路、9…偏向駆動回路、10…制御回路、11…出力回路、12…受像管、13…偏向コイル、14…スイッチ

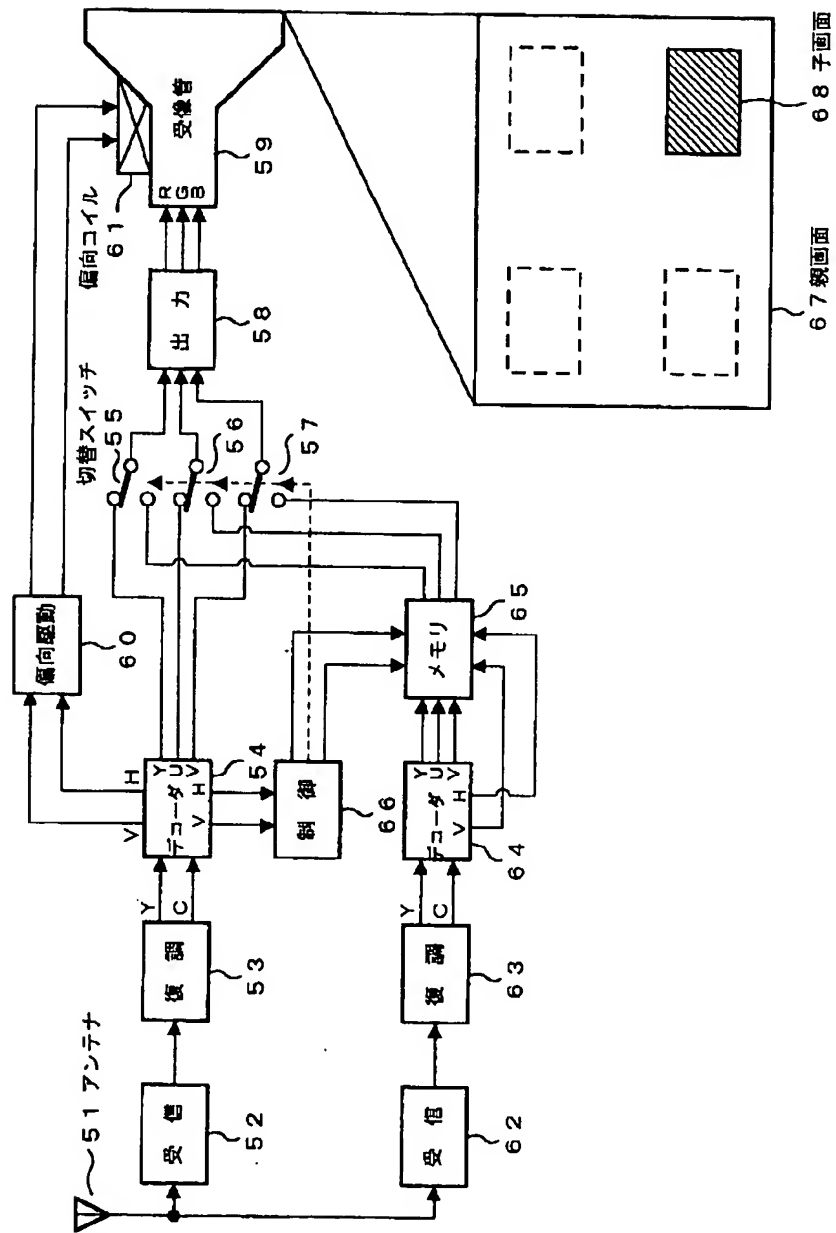
【図1】



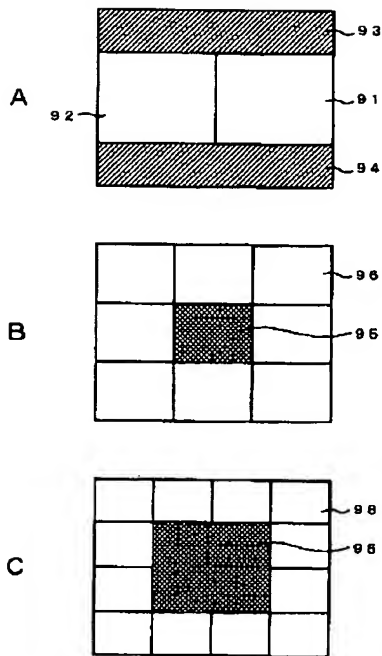
【図3】



【図2】



【図4】



【図5】

